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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,039	04/16/2004	Hiroyasu Jobetto	04236/LH	9104
1933	7590	05/31/2006	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC			HA, NATHAN W	
220 Fifth Avenue			ART UNIT	
16TH Floor			PAPER NUMBER	
NEW YORK, NY 10001-7708			2814	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/826,039

Applicant(s)

JOBETTO ET AL.

Examiner

Nathan W. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,8-20,22,23,39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) 18-20,23 and 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,8-11,13,22 and 39 is/are rejected.
- 7) ☒ Claim(s) 3-4, 12, and 14-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. The request of reconsideration of claim 23 is acknowledged. The argument is on the ground(s) that claim 23 should belong to the elected species. This is not found persuasive because claim 23 further claims that the sealing member formed in a gap adjacent to the semiconductor construction assemblies and the conductor extends to a region corresponding to the sealing member. This limitation reads on one of the non-elected embodiments, for example, figure 36. As a result, the newly added claim 40, which depends on claim 23, also is withdrawn from further consideration.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 5, 8-11, 22, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated Chen et al. (US 6,680,529, newly cited, hereinafter, Chen.)

In regard to claims 1 and 22, in fig. 2, Chen discloses a semiconductor device, comprising:

- a semiconductor construction assembly 200 including:

- a semiconductor substrate 210 having first and second surfaces that are mutually opposed to each other, and a plurality of side surfaces between said one surface and the other surface, and has an integrated circuit element formed on the first and second surfaces;

- an integrated circuit element formed on the first surface, where it is connected to pads 214;

- a plurality connection pads 214, which are arranged on the first surface and connected to the integrated circuit element;

- a protective layer 231 which formed to cover the first surface of the semiconductor substrate and has openings for exposing the connection pads;

- a plurality of conductors 240 which are connected the connection pads and arranged on the protective layer, and have pads, portion of 240;

- columnar electrodes 242 formed on the pads of the conductors;

- a sealing film 232 which formed between the electrodes and on the protective layer;

- a sealing member which covers at least one side surface of the semiconductor assembly, at the 213 side, for example;

an upper insulating layer 233 which covers the semiconductor assembly and the sealing member except for portions corresponding to the columnar electrodes so as to exposed an upper surface of each of the columnar electrodes;

an upper conductors 251 or 252 which are formed on the upper insulating layer, and each of which includes an end that is electrically connected to the pad of one of the conductors via the columnar electrodes and at least portion of the upper conductor is an external connection pads, where it is connected to the external devices such device 250; and

wherein an external connection pad of at least one of the upper conductors is disposed a region opposing to the sealing member.

Furthermore, the upper conductor which is connected to the projecting electrode extends to a region corresponding to the second sealing member. See fig. 3, for example.

In regard to claim 5, wherein lower surfaces of the sealing member and the semiconductor construction assembly are flush with each other. See figs. 2 and 4.

In regard to claim 8, Chen further comprises a base member 270 which holds the semiconductor construction assembly and the sealing member. See fig. 3.

In regard to claim 9, wherein the base member is made of heat dissipation material, encapsulating material, for example, see also col. 4, lines 53-55.

In regard to claim 10, Chen further discloses an insulating layer 220 which fixes the semiconductor construction assembly to the base member. See fig. 2.

In regard to claim 11, Chen further discloses the sealing member comprises a buried member 224. See fig. 2.

In regard to claim 39, Chen further discloses that 241 and 240, which is part of 242 are made of copper. See col. 4, lines 10-16.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claims 1, 5, 8-11, 22, and 39 above, and further in view of another embodiment, fig. 4 of Chen's invention.

In regard to claim 13, the mentioned embodiment above, fig. 2, does not expressly disclose that a further insulating material is filed between the buried member and the semiconductor assembly. However, in another embodiment, fig. 4, Chen further discloses an analogous device and further teaches an adhesive layer 312 filed between the chip, or substrate, 312 and the buried layer 321 in order to provide an adhesion between the chip and the laminated substrate. See also col. 5, lines 7-10.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include an adhesive layer in between in order to adhere these devices together.

Allowable Subject Matter

6. Claims 3-4, 12, and 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Nathan Ha', with a stylized flourish extending to the right.

Nathan Ha
May 20, 2006